

Claims

1. A ticket management system including a terminal device and a ticket management server,
 - 5 the terminal device comprising:
 - an electronic value storage unit storing an electronic value;
 - an acquisition unit operable to acquire, from a ticket to which non-updatable value information is assigned,
 - 10 identification information which identifies the ticket;
 - a transmission unit operable to transmit an electronization request including the acquired identification information to the ticket management server; and
 - 15 a value update unit operable to update the electronic value stored in the electronic value storage unit, by adding an electronic value shown by the value information assigned to the ticket identified by the identification information, and
 - the ticket management server comprising:
 - 20 a status storage unit storing the identification information and status information showing whether the ticket identified by the identification information has been electronized, in correspondence with each other;
 - 25 a reception unit operable to receive the electronization request from the terminal device; and
 - a change unit operable to, when the status information corresponding to the identification information included in the electronization request shows that the ticket has not been electronized, change the status information to show that the

ticket has been electronized.

2. A terminal device for converting a ticket to which non-updatable value information is assigned into an electronic value, and being used with a ticket management server which manages electronization of the ticket identified by identification information, the terminal device comprising:

an electronic value storage unit storing the electronic value;

10 an acquisition unit operable to acquire the identification information which identifies the ticket from the ticket;

a transmission unit operable to transmit an electronization request including the acquired identification 15 information to the ticket management server; and

a value update unit operable to update the electronic value stored in the electronic value storage unit, by adding an electronic value shown by the value information assigned to the ticket identified by the identification information.

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3. The terminal device of Claim 2, wherein

the value update unit includes:

a write judgment unit operable to judge whether the ticket identified by the acquired identification information is valid;

25 a value acquisition unit operable to, when the ticket is judged as valid, acquire the electronic value shown by the value information assigned to the ticket; and

a value update unit operable to update the electronic

value stored in the electronic value storage unit, by adding the acquired electronic value.

4. The terminal device of Claim 3, wherein

5 the write judgment unit includes:

a receiving unit operable to receive electronization information showing whether the ticket identified by the identification information has been electronized, from the ticket management server; and

10 a determination unit operable to, when the electronization information shows that the ticket has not been electronized, determine the ticket as valid.

5. The terminal device of Claim 3, wherein

15 judgment information based on the identification information is stored on the ticket,

the write judgment unit includes:

a judgment information acquisition unit operable to acquire the judgment information; and

20 a determination unit operable to, when the identification information coincides with the judgment information, determine the ticket as valid.

6. The terminal device of Claim 5, wherein

25 the judgment information is stored on the ticket in a bar code format, and

the judgment information acquisition unit acquires the judgment information stored in the bar code format.

7. The terminal device of Claim 3, wherein
the value acquisition unit includes:
a request unit operable to, when the ticket is judged as
valid, request the ticket management server to notify the value
information assigned to the ticket by transmitting a
notification request including the identification
information, and
a response acquisition unit operable to receive, as a
response to the notification request, the value information
from the ticket management server, and acquire the electronic
value shown by the value information.

8. The terminal device of Claim 3, wherein
the identification information includes the value
information assigned to the ticket, and
the value acquisition unit, when the ticket is judged as
valid, extracts the value information from the identification
information, and acquires the electronic value shown by the
value information.

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9. The terminal device of Claim 2, wherein
the ticket includes a storage device storing the
identification information which identifies the ticket, and
the acquisition unit acquires the identification
information stored on the storage device.

10. The terminal device of Claim 9, wherein
the storage device is an IC tag storing the identification

information, and

the acquisition unit acquires the identification information stored on the IC tag.

5 11. The terminal device of Claim 2, wherein
the identification information is stored on the ticket
in a bar code format, and
the acquisition unit acquires the identification
information stored in the bar code format.

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12. The terminal device of Claim 2 further comprising:
an invalidation identification acquisition unit operable
to acquire identification information which identifies an
invalid ticket;
15 an invalid value acquisition unit operable to acquire an
invalid value that is an electronic value shown by value
information assigned to the invalid ticket identified by the
acquired identification information;
a balance judgment unit operable to judge whether the
20 invalid value is no more than the electronic value stored in
the electronic value storage unit;
a validation request transmission unit operable to, when
the invalid value is judged as no more than the electronic value
stored in the electronic value storage unit, transmit a
25 validation request of the ticket to the ticket management
server;
an authorization reception unit operable to receive
authorization information for authorizing to validate the

ticket from the ticket management server; and
a subtraction unit operable to, when the authorization
information is received, subtract the invalid value from the
electronic value stored in the electronic value storage unit.

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13. The terminal device of Claim 2 realized by a communication
device and a storage medium, wherein

the communication device includes the acquisition unit,
the transmission unit, and the value update unit, and

10 the storage medium includes the electronic value storage
unit.

14. A ticket management server which manages a status of a
ticket to which non-updatable value information is assigned,
15 the ticket management server comprising:

a status storage unit storing identification information
which identifies the ticket and status information showing
whether the ticket identified by the identification information
has been electronized, in correspondence with each other;

20 a reception unit operable to receive an electronization
request including the identification information of the ticket,
from a terminal device; and

25 a change unit operable to, when the ticket identified by
the identification information included in the electronization
request is valid, change the status information corresponding
to the identification information stored in the status storage
unit, to show that the ticket has been electronized.

15. The ticket management server of Claim 14, wherein
the change unit includes:

a judgment unit operable to judge whether the status
information stored in the status storage unit corresponding to
5 the identification information included in the electronization
request shows that the ticket has been electronized, and

a changing unit operable to, when the ticket is judged
as not having been electronized, determine the identification
information as valid, and change the status information to show
10 that the ticket has been elctoronized.

16. The ticket management server of Claim 14 further
comprising:

a validation request receiving unit operable to receive
15 a ticket validation request including identification
information of an invalid ticket from the terminal device;

an electronization judgment unit operable to judge
whether status information corresponding to the identification
information included in the validation request shows that the
20 ticket has been electronized;

a ticket validation unit operable to, when the status
information shows that the ticket has been electronized, change
the status information to show that the ticket has not been
electronized; and

25 an authorization transmission unit operable to, when the
status information shows that the ticket has been electronized,
transmit authorization information showing authorization to
validate the ticket to the terminal device.

17. A register device for adjusting a payment amount, and being used with a ticket management server which manages validity of a money ticket and a terminal device, the register
5 device comprising:

a calculation unit operable to calculate the payment amount;

10 a holding unit operable to hold a money ticket ID for identifying the money ticket and amount information showing an amount of the money ticket, in correspondence with each other;

an acquisition unit operable to acquire, from an IC tag attached to the money ticket, the money ticket ID for identifying the money ticket;

15 an inquiry unit operable to inquire of the ticket management server whether the acquired money ticket ID is valid;

a receiving unit operable to receive a response showing whether the money ticket identified by the acquired money ticket ID is valid, from the ticket management server; and

20 a charging unit operable to, when the response shows that the money ticket is valid, charge the terminal device for an amount after subtracting the amount of the money ticket identified by the acquired the money ticket ID from the payment amount.

25 18. A value conversion method used in a terminal device including an electronic value storage unit storing an electronic value and convert a ticket to which non-updatable value information is assigned into an electronic value, the

method comprising steps of:

acquiring identification information which identifies
the ticket from the ticket;

transmitting an electronization request including the

5 acquired identification information to a ticket management
server which manages electronization of the ticket; and

updating the electronic value stored in the electronic
value storage unit, by adding the electronic value shown by the
value information assigned to the ticket identified by the
10 identification information.

19. A computer program used in a terminal device including
an electronic value storage unit storing an electronic value
and convert a ticket to which non-updatable value information
15 is assigned into an electronic value, the program comprising
steps of:

acquiring identification information which identifies
the ticket from the ticket;

transmitting an electronization request including the

20 acquired identification information to a ticket management
server which manages electronization of the ticket; and

updating the electronic value stored in the electronic
value storage unit, by adding the electronic value shown by the
value information assigned to the ticket identified by the
25 identification information.

20. A computer readable storage medium storing the computer
program of Claim 19.